Volunteer Firemen

Professional Journal of the Volunteer Firemen's Section

Pictures Inc.

This is the sort of housekeeping that results in fatal fires. Seven persons including five children were burned to death in this dwelling, the back yard of which resembled a junk heap.

Spring Time Is Clean-Up Time

Also in this issue—How to Stretch a Line When Shorthanded
Spotting Fire Alarm Box Locations—Modern Gravity Tanks

Volume 5, Number 4 BOSTON, MASSACHUSETTS April 1938

National Fire Protection Association

INTERNATIONAL

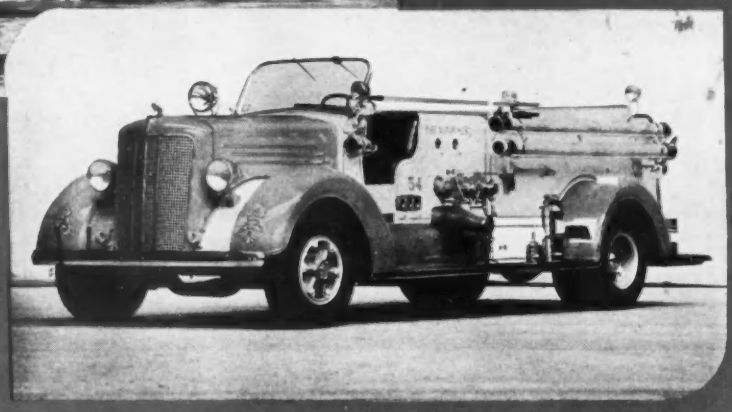
Mack

STREAMLINED IN DESIGN AND IN EFFICIENCY, TOO!

★

One of two Mack Type 21 Quadruple combination pumpers equipped with centrifugal pump recently delivered to Baltimore, Md., Fire Department.

★



Another modern unit for Baltimore—Mack Type 21 triple combination pumper equipped with centrifugal pump.

★

FIRE CHIEFS today are demanding up-to-the-minute appearance in fire-apparatus. No wonder so many of them are modernizing with Mack!

For Mack's vast resources—which permit constant improvement—have kept Mack Fire Apparatus out in front in modern design and streamline styling. And—more important—Macks are modern clear through in construction, safety and performance.

Hailed by fire chiefs as the best-looking fire apparatus ever built, modern Macks lead the field in money-saving stamina, dependability and top-notch efficiency on the job. Mack has the facilities to build the finest in fire apparatus—AND DOES!

MACK TRUCKS, INC., FIRE ENGINE DIVISION, NEW YORK, N. Y.

HORATIO BOND — Managing Editor

AS WE go to press, word is received from the N.F.P.A. Committee on Municipal Fire Apparatus that it is recommending that the capacity of fire department pumpers be rated at 150 pounds per square inch in the future instead of 120 pounds which has been long the basis on which pumper capacity is given. The recommendation also is being made that pumpers should deliver 70 percent instead of 50 percent of their rated capacity at 200 pounds, and 50 percent instead of 33⅓ percent of the rated capacity at 250 pounds.

Examples of the effect of this recommendation are (1) a 600 gallon per minute pumper on the new basis will deliver substantially as much water as is now delivered by one rated 750 gallons; (2) pumpers built on the new basis will deliver as much water at 250 pounds pressure as the old ones would do at 200 pounds.

This appears to be a move which will give fire departments stronger and more effective pumping apparatus. The recommendation not only has the backing of the fire service, but manufacturers have assured that they will produce the increased pumping capacities at practically no additional cost.

Firemen have long complained that at the highest pressures even the 750 and 1,000 gallon pumpers were little more than one line engines. The recommended ratings will in effect make every pumper a high pressure job.

THE Chairman of the N.F.P.A. Committee on Municipal Fire Apparatus is Joseph N. Sullivan, Commissioner of Public Safety and Chief of the Fire Department, Utica, N. Y. Commissioner Sullivan will present this report to the annual meeting of the N.F.P.A. to be held this year May 9-12 at the Chalfonte-Haddon Hall Hotel, Atlantic City, N. J.

This is, however, only one of some thirty N.F.P.A. technical committees which will report at this meeting. A program of the meeting will be mailed to members with the April NEWS-LETTER which member departments will receive at fire headquarters, and a copy will be mailed to any other reader on request. Mark the dates, May 9-12, on your calendar!

Volunteer Firemen

Volume 5 — Number 4

Copyright, 1938, National Fire Protection Association, a voluntary non-profit organization, 60 Batterymarch Street, Boston, Mass., U. S. A.

Franklin H. Wentworth — Managing Director
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Robert S. Moulton — Technical Secretary
DeWayne E. Nolting — Fire Record Department

Please notify us promptly of any change of address

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-THE VOLUNTEER FIREMAN

Warren Y. Kimball — Associate Editor

OVER 13,000 individual volunteer firemen are now members of the Volunteer Firemen's Section. This is an increase of 2,000 men over the enrollment just a year ago and indicates increasing popularity of this comparatively new Section of the N.F.P.A. Last month 25 departments with 528 men joined for the first time. In addition 52 fire departments with 1,121 men renewed membership, bringing the total for the Section to 584 departments and 13,011 firemen. The following departments are newly enrolled:

Avenal Fire Department, Avenal, California.
David A. Curry Club of Yosemite Park and Curry County Fire Department, Yosemite National Park, California.
Citizens' Hose Company No. 1, Inc., Smyrna, Delaware.
Mullan Volunteer Fire Department, Mullan, Idaho.
Hanover Volunteer Fire Company, Hanover, Illinois.
Bettendorf Fire Department, Bettendorf, Iowa.
Houma Volunteer Fire Company No. 1, Houma, Louisiana.
Cedar Rapids Volunteer Fire Department, Cedar Rapids, Nebraska.
Beach Haven Volunteer Fire Company No. 1, Beach Haven, New Jersey.
Glen Ridge Fire Department, Glen Ridge, N. J.
Keansburg Fire Company No. 1, Keansburg, New Jersey.
Lake Parsippany Volunteer Fire Company, Morris Plains, New Jersey.
Rockaway Fire Department, Rockaway, New Jersey.
Fairview Fire Company, Poughkeepsie, New York.
Eureka Hook and Ladder Company No. 1, Rockville Centre, New York.
Carthage Fire Department, Carthage, North Carolina.
Marietta Fire Department, Marietta, Ohio.
West End Fire Company, Stowe, Pennsylvania.
Easley Fire Department, Easley, South Carolina.
Platte Volunteer Fire Department, Platte, South Dakota.
Scotland Fire Department, Scotland, South Dakota.
Franklin Volunteer Fire Department, Franklin, Virginia.
Weyauwega Fire Department, Weyauwega, Wisconsin.
Lunenburg Fire Department, Lunenburg, Nova Scotia.
Burlington Fire Department, Burlington, Ontario.

Spring Time Is Clean-Up Time

Rubbish Not Promptly Disposed of Invites Destruction by Fire—Painting and Repairing Tend Toward Greater Fire Safety and Respect for Property

ONE of the most important events on the community calendar is the Fire Prevention Clean-Up Campaign which rolls around with the sunny days of Spring. Unlike Fire Prevention Week in the fall, no single week is designated for a universal campaign throughout the United States and Canada, but each community selects the week which best fits into its local program. Clean-Up Week is usually staged during the early Spring in the south and later in the north where it is necessary to wait for warmer weather.

Regardless of the exact week chosen, the campaign can do much to reduce the toll of life and property needlessly sacrificed to fire each year. The Spring campaign also gives the fire department another opportunity to be of service to aid the development of a safer and more attractive community.

The reason for fire department interest in the Spring Clean-Up Week is briefly summed up by the old saying, "A clean house seldom burns". While we rightly hear much today of the "special fire hazards" arising from new industries, the fact remains that the great bulk of every day fire calls are for blazes in homes and stores. It is in ordinary dwelling fires that most of the terrible annual loss of 10,000 lives by fire occur. Most people will be surprised at the amount of useless material which has accumulated during the winter and personal enthusiasm for the Clean-Up Campaign will generally develop. Most housekeepers are loath to discard anything which has worn out. There is always the notion that some future use may be found for every fire-breeding relic saved. Such use seldom comes, seldom enough anyway to justify filling attics and cellars with combustibles. These accumulations produce thick, impenetrable smoke in event a fire occurs and prevent firemen from making quick work of what would otherwise have been a trivial blaze.

Rubbish and other useless materials not promptly disposed of, invite destruction by fire. While ignition may come from many causes such as a carelessly thrown match, it is the burnable material which to a large measure is responsible for the extent of the fire. Clean out winter accumulations of rubbish and you eliminate fuel for potential fires. And of course if there was no rubbish, fires reported due to "spontaneous ignition of rubbish" would not occur.

In putting on a successful Fire Prevention Clean-Up Campaign all available help should be enlisted. The following groups will be interested and cooperative: City officials, including the department of health, division of sanitation, schools, civic clubs, merchants' associations and Chamber of Commerce, boy and girl scouts and 4-H Clubs, local industries and women's organizations.

In soliciting the help of such groups it is well to point out that in addition to eliminating causes of fire, the objectives of the Spring Clean-Up Campaign are to create civic pride and home interest, prevent disease, preserve property through painting and repairs and to generally improve and develop the community.

JUST cleaning up is not sufficient for permanent safety of property. Repairing, painting, planting, and beautification all tend toward greater safety and encourage respect for property so that it will be much less likely to again become a depository for rubbish and litter. Unprotected wood has a tendency to weather and dry out until it becomes like tinder. Paint keeps wood in good condition. In order to paint, it is first necessary to clean up.

THE following suggested program will provide a full week of well directed activity. The program for each day should be properly heralded by the local press and local radio stations if available:

Sunday—CHURCH DAY: Churches should make appeals for cooperation by members in the general clean-up of both their homes and their neighborhood. "Cleanliness Is Next to Godliness."

Monday—SCHOOLS: Home Inspection blanks explained and given out. Addresses in all schools on the reason for the Clean-Up Campaign.

Tuesday—FACTORIES: A careful check-up of factories and industrial plants. Plants and yards cleaned.

Wednesday — STORES AND OFFICES: Inspect and have buildings cleaned up; clean up vacant lots, yards, alleys, streets.

Thursday — COMMUNITY CLUBS: Talks and other fire prevention activities in civic clubs, trade groups, luncheon clubs, women's organizations.

Friday — CITY OFFICIALS' SURVEY: Mayor, director of public safety, health commissioner, fire chief, police chief — inspect city. Through newspapers give special recognition to sections of the city where best work has been done. Fire department exhibition.

Saturday—CITY BEAUTIFUL: Plant gardens. Re-seed lawns. Paint fences and buildings where necessary. Repair roofs, whitewash cellars and clean windows. Plan to distribute usable clothing and furniture collected through proper agencies.

For more complete information about the Clean-Up Campaign, write to the N.F.P.A. for the leaflet, "Fire Prevention Clean-Up Campaign". This includes a self-inspection blank for use by school children. There is also available a fire prevention clean-up campaign poster, 12 x 16 inches, and a special radio interview for fire chiefs. Single copies will be sent free upon request.

CLEAN-UP CAMPAIGN PROCLAMATION

The general health, happiness, life safety and welfare of each of our citizens depend upon wholesome surroundings and good clean living conditions. Winter accumulations in vacant lots, yards, industries and homes are not only disease breeders but potential fire hazards. Our city should stimulate its civic pride by transforming every danger signal into a beauty spot.

THEREFORE, I.....Mayor

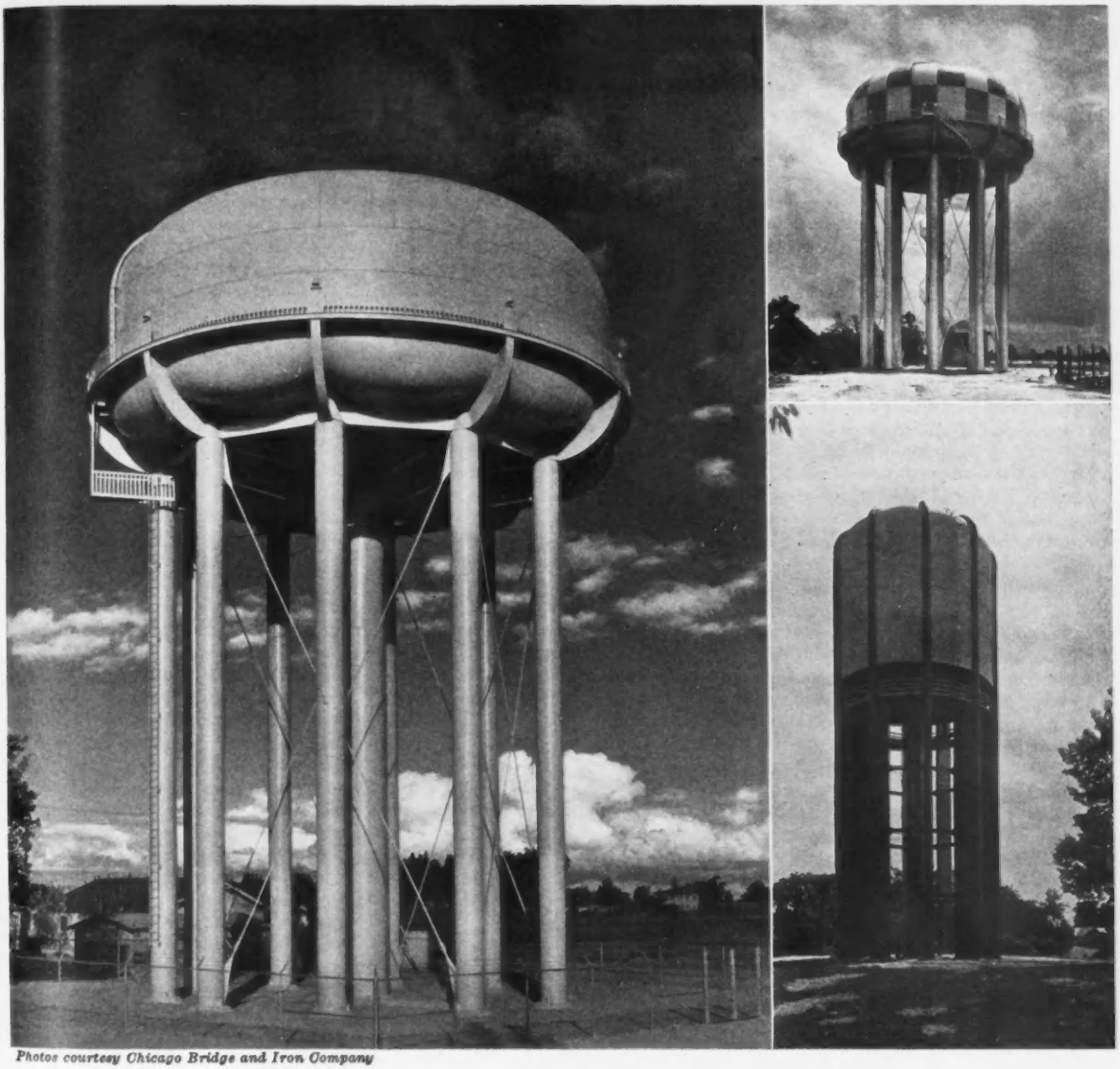
(or City Manager) of the City of..... do hereby designate and proclaim the week beginning.....as Fire Prevention Clean-Up Week and call upon all civic and trade associations, educational institutions, both private and public, and the citizens in general to take active part in the constructive program planned for community welfare.

In testimony whereof I hereby sign my name and Seal of Office this.....day of.....1938.

Attest:

.....
City Clerk

.....
Mayor or City Manager



Photos courtesy Chicago Bridge and Iron Company

An Effect Pleasing to the Eye—Water at Good Fire Fighting Pressures—Both With a Modern Gravity Tank

IF WATER could always be stored on a hill so that it might flow by gravity to a fire, that would be just what is needed for fire fighting. Today no city, large or small, need be without that sort of dependable supply at positive pressure. Just provide a modern steel gravity tank and the job is done.

There are some people who, when you mention tanks, will conjure up in their minds a picture of an unsightly wooden tank, or they may think of seeing a badly proportioned vertical standpipe sticking up like a factory chimney in their residential district.

Those folks should get a look at some of the modern gravity tanks and see how far the design of these structures has advanced. Particularly noteworthy is the structure shown in the largest photograph above. This is a 500,000 gallon water tank, 65 ft. above the ground, recently installed on the water system of the City of Fresno, Calif. Nothing in the tank itself or in its supports has been sacrificed from its fundamental purpose, yet the general effect is a well balanced, well proportioned structure. Industrial art is this sort of combination of utility and an effect which is pleasing to the eye.

The picture in the upper right hand corner is a tank at the City of Augusta, Ga. The checker-board effect on this particular tank was required because the tank was in an air lane, but this feature adds rather than detracts from its general pleasing appearance. The other photograph shows a prize-winning elevated tank design installed a few years ago at Towson, Md. It holds 300,000 gallons of water.

Spotting Locations of Fire Alarm Boxes

Plan of Ideal Box Locations Should Be Completely Worked Out Though All May Not Be Installed at First

PROPERLY distributed fire alarm boxes, systematically numbered, have an almost magical effect in speeding up fire department response to alarms. When a box is pulled it immediately sounds over the siren or whistle so that the entire department knows the exact location. In addition, with a good alarm box system, delays due to mistaken locations, such as are common with telephoned alarms, are eliminated.

The first step in laying out a modern system of fire alarm boxes is to get a good map of the community and spot every location where a box is needed, including not only locations of street boxes but of boxes needed to properly protect schools, institutions, factories and other special hazards. The accompanying map shows the fire alarm box system of a typical city. As this map shows, good box distribution would generally require a box at every street intersection in the business district and at every other intersection in other built up areas. Under this plan every building in the business district is within half a block of a fire alarm box. Buildings in other built up sections are within one block of a box.

When first laying out a box system it is not always possible to install at the start all the boxes which would be desirable. However, the complete system to be eventually installed should be laid out on the map with the locations of all future boxes spotted. When installing the system boxes would be placed first at the most important or key locations. The other locations would be covered by "Phantom" or "dummy" numbers to indicate locations of telephoned alarms until such time as a street box can be installed. By way of example, box 21 might be one of those installed at the start and numbers 212, 213, 214 and 215 could be used to indicate telephone calls from other nearby street locations at which boxes will be gradually installed as funds are available.

In properly numbering a box alarm system the community should be divided into zones. Every box in each zone should start with the same number so that when the first digit of any box is sounded the entire fire department immediately knows the section of the community in which the alarm has originated.

Each group of boxes or zones should be laid out to take advantage of natural divisions made by principal streets, railroad lines, streams, or other features generally recognized as dividing the community. In some instances political divisions such as ward lines have proved to be convenient zones in which to group fire alarm box numbers. Some departments having a number of fire stations have laid out the zones about the stations, and given the zone the same number as the nearest fire company. Any such intelligent grouping of fire alarm boxes makes it much easier to memorize the location of each box and to know the general direction of the run even before the first full round of the box has been received.

As shown by the small key map below the larger map, the boxes in this typical city system are divided into eight zones. For example, if the box starts with seven blows the firemen know that the fire is due north of the business center. If on the other hand the first number is a five, the call would have to originate in the south-west part of the city. As a matter of fact, both zones four and five as shown on the map happen to be separated from the rest of the city by a railroad line. Any alarm starting with these numbers is therefore instantly recognized as coming from south of the tracks.

IN MOST small communities, installing a fire alarm box system for the first time, only five or six number zones are necessary or desirable. For example, where a community is situated on level land with streets, extending north, south, east and west from the business center, the best arrangement would probably be to have all boxes in the high value district and close to the fire station, start with the digit one. Zones two, three, four and five would be to the north, east, south and west.

In planning small alarm box systems, no number having digits of more than six blows need be used. A system having twenty-five to thirty boxes need have no box numbers of more than two digits and no single digit of more than six blows. In such a small system boxes in the business district would be numbered 12, 13, 14, 15, and 16. Boxes in other zones would be numbered 21, 23, 24, 25, 26; 31, 32, 34, 35, 36; 41, 42, 43, 45, 46; and 51, 52, 53, 54, 56. Double numbers such as 22, 33, 44, have been omitted as they are sometimes reserved for special signals.

IN LARGER systems where alarm box numbers of three digits are used it is possible to have well over 200 boxes without using any single digit of more than six blows. Keeping down the number of blows of the box is important, not only in cutting the time required to sound each "round" (one complete signal) of a box, but also to make the counting of alarms much easier. Long numbers are harder to count, particularly at a distance from the whistle, where wind or other noises may tend to slightly confuse the signal. Long numbers such as nine or ten blows should not be used where outside alarms are necessary.

Where "three numbered boxes" (box numbers composed of three digits) are employed, these should be grouped in subzones which would more closely indicate the location of the alarm. For example, around box 21 would be grouped boxes 212, 213, 214, 215 and 216. Thus when any box starting with 21 is received the firemen upon hearing the first two digits immediately know the general location of the fire. This considerably helps the volunteers who may not be near the station when the alarm is sounded.

Private fire alarm boxes such as those located in schools, hospitals or manufacturing plants, should have numbers which identify them with the nearest street box.

In general it is not considered good practice to use numbers such as 211 in which the digit one is repeated. It has been found from experience that the

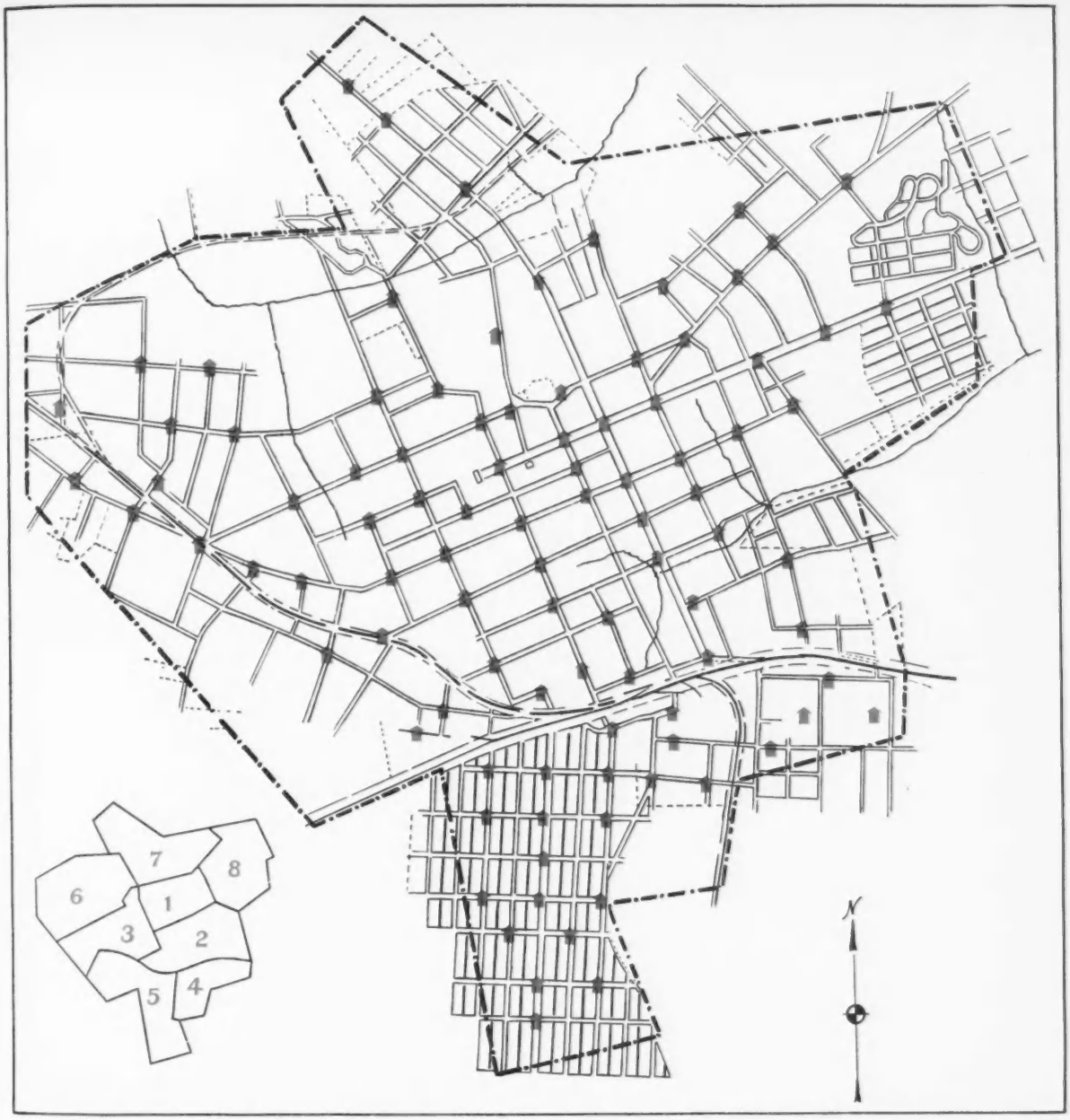
A Problem Question
FOR APRIL

Suggested for discussion at company and department meetings this month

77

Why is it important to give attention to certain details in connection with fuel tanks installed on small motor boats and similar craft?

Watch for the answer in the next issue of VOLUNTEER FIREMEN. The answer to the problem question for March will be found on this page.



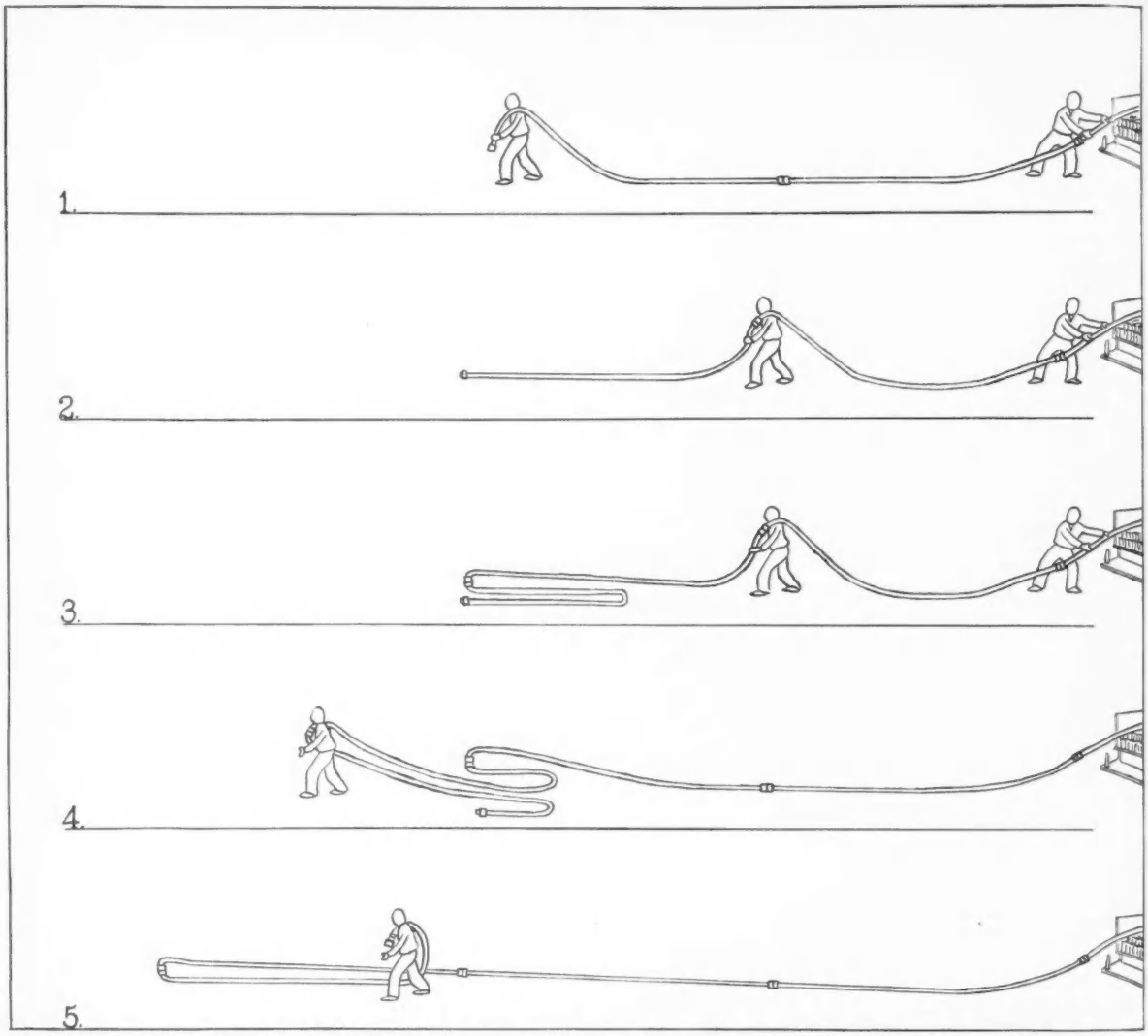
Here is a typical city where an ideal distribution of fire alarm boxes was first worked out on a map. Boxes were installed subsequently as shown. The system is divided into zones (small map). The zone number is the first digit of each box number in the zone.

repeated one is easily confused with the number two. For example, box 311 might be counted 32 if there is a strong wind or other interference.

To give men at a distance a chance to confirm the count of a box, four complete rounds of any box should be sounded over outside alarms. At night when a man so situated is awakened from his sleep he may not be sure of the count of the first round of the box. While he is turning out he will have a chance to count the subsequent rounds.

As shown by the accompanying map, when used, the high number zones (boxes starting with seven or eight blows) are in outlying areas where fewer boxes are needed. In planning for small systems these high number zones can be left out of the picture so as to care for future growth or annexations of territory. In some cities, which have had fire alarm systems for some time, the original zones were laid out to include only the present central section with little plan for future growth. In such cases many boxes have been installed in outlying zones starting with numbers seven, eight and nine, so that long slow sounding numbers such as 887 or 994 have become necessary. Many large cities have been forced to renumber their box alarm system.

How to Stretch a Line When Shorthanded



Evolution suggested by Assistant Chief Henry Haddock, Drillmaster, and drawn by Lieutenant R. W. McBrien, Fire Department, Lynn, Massachusetts.

1. Drag 100 feet of hose from the truck toward the fire. 2. Instead of continuing to drag the hose until exhausted, go back 50 feet and pick up hose at coupling. Extend this coupling to point parallel with the head of the line, 100 feet from the truck. 3. Repeat operation No. 2 until desired amount of hose is stretched in loops on street in rear of the apparatus. 4. Step over to adjacent loops of hose and advance loops further toward fire, moving 100 feet of hose at a time. 5. The head of the line is extended to point of operation. This can be done as part of operation No. 4 if desired.

THIS evolution is especially valuable in volunteer departments and private fire brigades where it is often necessary for one or two men to stretch out a long line of hose alone. Without proper instruction a single man soon becomes exhausted by the weight of the hose dragging on the ground. If, however, the line is laid by moving only a part of the hose at one time, it is possible for one man without fatigue to run out any desired amount of hose in a remarkable time.

The method, illustrated above, by which one or two men can stretch a long line of hose is very simple when understood. The second man in the illustration, shown removing the hose from the truck, is not absolutely essential to the operation although desirable. In many cases the driver of the truck would be available to assist in removing the hose from the machine. After enough hose has been removed the man at the truck would assist in extending the line and making necessary connections.

While the above illustration shows the fireman dragging the hose from his shoulder, Professor R. B. Criswell, University of Maryland Fire Service Instructor, suggests that hose can be dragged much more easily from around the man's waist. A much greater drag can always be accomplished by using the powerful thigh muscles, and strained backs and sore muscles will be avoided. The exact manner in which a man drags the hose would not change the layout but it does affect the time required.

"WHAT A DIFFERENCE A FEW MINUTES MAKE!"

THEY FOUGHT a brave battle—but *they were licked before they started.* By the time the blaze was discovered . . . by the time the alarm was sent in . . . the flames already had gained hopeless headway.

Belated discovery . . . delayed alarm . . . these are the underlying causes behind nine out of ten serious fires. They are hazards which can be eliminated only through a modern fire protection system which detects and reports fire *automatically* and *instantly.*

With an Aero Automatic Fire Alarm System protecting the premises, fire will not get a head-start. Aero detects fire at its inception, and automatically summons the fire department direct to the premises. Aero is easy to install, inconspicuous in appearance, adaptable to any size or type of building. No capital outlay is required for installation. Write for complete information.

AERO AUTOMATIC FIRE ALARM

A·D·T

Controlled Companies of **AMERICAN DISTRICT TELEGRAPH CO.,** 155 Sixth Avenue, New York, N. Y.
Central Station Offices in all principal cities.

A NATION-WIDE PROTECTION SERVICE AGAINST FIRE, BURGLARY AND HOLDUP

Photo from William Charters, Executive Officer, Shanghai Fire Brigade (Member N.F.P.A.).

The most spectacular and impressive incident of the war fought on the borders of the International Settlement of Shanghai, was the conflagration that covered the retreat of the Chinese forces from Chapei. The billowing smoke rose skywards to a height of 3000 feet from fires that covered an area of forty square miles.

The Fire Threat in Warfare— Incendiary Bombs and Gases

LEADING commentators and experts on international affairs have described the current wars in Spain, China and Ethiopia as the testing grounds of modern warfare and of new implements of destruction. If this is true it should be evident to all observers that fire, probably rained from the skies, will be one of the greatest terrors of any major war in the future. Accordingly both in Europe and Asia much attention is being given to the development of fire protection organizations capable of coping with wartime conflagrations.

In many European countries, because of war danger, the fire brigades are part of or are closely allied with the military forces. Even in England where the fire brigade setup is similar to that of the United States and Canada, much attention has been given to the problem of coping with fires which may result from war.

Among the special problems to be faced are the dangers of incendiary bombs starting fires and explosive bombs simultaneously destroying water mains. Because fire alarm and other communication systems may be overtaxed by calls or wrecked by bombs a special messenger corps is necessary in such an emergency. Fire fighters may need gas-proof, fire resistive uniforms.

Modern incendiary bombs are diabolical in destructiveness and impossible to extinguish. Made of magnesium and containing "thermit" which generates a temperature of 3500° F. such bombs burn with terrifying brilliance. Pouring water on the magnesium only makes it scatter, still burning, and other common extinguishing agents, with the exception of sand or earth, are ineffective.

Probably the first modern fire brigade to demonstrate the vital part that fire fighting forces will play in modern warfare is that protecting the famous International Settlement at Shanghai, China. During the recent fighting there the Shanghai Brigade under Chief Officer J. Gordon Dyson (Member N.F.P.A.), added more fame to its already notable career. Although endangered by shellfire, the Brigade not only fought many serious fires resulting from the warfare but also gave first aid and ambulance service to the hundreds of victims of bombs and shells.

Membership Plan

Volunteer Firemen's Section National Fire Protection Association

WHERE 20 or more firemen in a volunteer company or department affiliate with the Volunteer Firemen's Section the cost is 50 cents a year *per man.* Each fireman will receive one copy of VOLUNTEER FIREMEN, the monthly journal of the Volunteer Firemen's Section, mailed regularly to his home address. The company or department automatically becomes a member of the National Fire Protection Association and is entitled to full privileges of membership. All the literature regularly issued to N.F.P.A. members is mailed to headquarters of the company or department.

Membership may be applied for by one member of the company or department collecting 50 cents for each of the 20 or more members and making a single remittance for the group, or the company or department may take a membership for its men and make a single remittance from the company or department treasury.

Companies With Less Than 20 Members

Because of the large amount of material mailed to members, not less than $10.00 can be accepted from any company or department for membership dues. In the case of companies or departments with less than 20 men this means that the cost divided among them will be slightly higher per man. Of course, some such companies or departments may prefer to make a single remittance of $10.00 from the company or department treasury. In other cases a few interested citizens, not members of the company or department, may be glad to contribute 50 cents apiece to make up the required minimum of 20 so that the members may secure the rate of 50 cents per man.

Federal C-5 Coaster Siren

Specify a Federal C-5 Coaster Siren

With Electric Brake and Red Light on Your New Equipment for Speed With Safety

Triple action in this new, powerful streamlined C-5 Coast is attributed to:

SOUND of a new compelling tone.
LIGHT that flashes on and off with siren roar.
ECONOMY—it actually coasts for more than 120 seconds.

Write for Bulletin No. 56

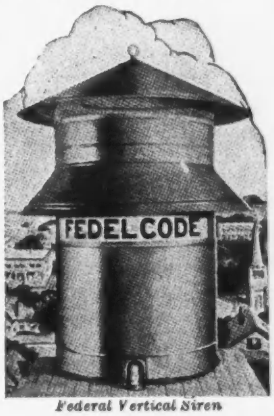
Federal Vertical Sirens

Protect Your Property

Save Lives in Your Community

The Federal Vertical Siren distributes sound in a wide range in all directions. Rugged in construction to withstand all kinds of abuse. Entirely weatherproof. Equipped with special high speed ball-bearing motor. Be sure to specify a new Federal Vertical siren. Our engineers will gladly survey your particular problem free of obligation. Consult us today.

Write for Bulletin No. 55



Federal Vertical Siren

FEDERAL ELECTRIC COMPANY

8717 SOUTH STATE STREET **CHICAGO, ILLINOIS**

M·S·A

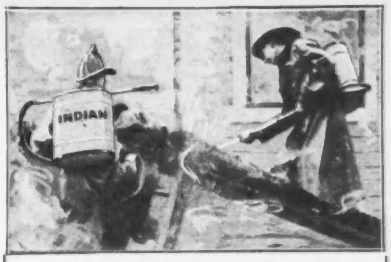
ALL-SERVICE GAS MASK

(BURRELL TYPE)

CONSERVES MAN-POWER WHEN NEEDED MOST

Adequate protection of firemen entering gaseous atmospheres is essential by every consideration—not least of which is the necessity to *maintain numerical strength* of the force responding to an alarm. The famous M.S.A. All-Service Mask permits men to work safely and efficiently in the presence of combinations of carbon monoxide and all other poisonous industrial gases, fumes and smoke, with complete comfort and freedom. It is the *only* canister-type mask approved by the U. S. Bureau of Mines for protection against these hazards. ● Investigate this all-purpose protection—the finest available! Write for details now—a demonstration can be arranged whenever you wish.

MINE SAFETY APPLIANCES CO.
Braddock, Thomas & Meade Sts., Pittsburgh, Pa.
District Representatives in Principal Cities



ROOF FIRES EXTINGUISHED QUICKLY WITH

INDIAN FIRE PUMPS

Roof, awning, rubbish, building and grass fires are quickly controlled with INDIAN FIRE PUMPS. INDIANS are the most efficient, economical and fastest fire fighters made. The curved metal tank holds 5 gallons of clear water and is unsurpassed as a portable extinguisher for Fire Department use. Arms of carrier are left free.

Positive and fast in action, INDIAN FIRE PUMPS frequently save laying a single foot of hose. Think what this means! A saving in time, effort and money. Three or four men sling tanks on their backs and get after the fire in a hurry without a minute wasted.

CARRYING HANDLE

May be carried on the back or by handle. Form fitting, ventilated tank allows continuous circulation of air between carrier's back and water tank. This prevents dampness, moisture, and cold reaching carrier's back which remains dry and comfortable. Clear water continually kept in the tank makes the INDIAN ready for use at all times. Tank will not rot or mildew.

The reason I think so much of the INDIAN FIRE PUMP is because INDIANS are used to put out about 40% of the fire alarms we have. Over heated stoves, kitchen and room blazes, chimney fires, roof and shingle fires are extinguished in a hurry.
INDIANS are the best yet for fighting grass fires around town. They are easily and quickly refilled from the Booster. Every fire department should have them.
—CARLTON ODOM, *Fire Chief*
Jacksonville, Florida

Anyone connected with Fire Protection should be familiar with INDIANS — write for catalog and testimonials.

D. B. SMITH & CO.

416 Main St., Utica, N. Y.

Pacific Coast Agents:
Hercules Equip. & Rubber Co., 550 Third St., San Francisco, Cal.; Pacific Marine Supply Co., 1217 Western Ave., Seattle, Wash.; Western Loggers' Machinery Co., 302 S. W. 4th St., Portland, Oregon.

"Magnifying Glass" Fires

Ancient Method of Starting Fires With Sun's Rays May Be Cause of Many Mysterious Blazes of Today

THE possibility of fires becoming started by concentrated heat from the sun was known to the Ancients. When the Roman fleet besieged the famous city of Syracuse, the noted Greek mathematician Archimedes reputedly set fire to the ships and destroyed the attacking fleet by means of a huge battery of reflectors. Also, it was nearly 200 years ago that the scientist Buffon melted lead at a distance of 140 feet with reflected sunlight. The reflector used in his experiment was made of 168 mirrors, each 6 by 8 inches in size, making a total of nearly 50 square feet of reflecting surface.

That such a powerful concentration of sunlight is not needed to start fires at close range is known to every small boy who has played with an ordinary magnifying glass. It is very probable that many fires, the causes of which have not been detected, were started by the sun's rays. A piece of glass dropped in a forest might, on a hot, dry day, start a forest fire that would burn thousands of acres and never be explained.

From time to time the N.F.P.A. Department of Fire Record receives reports of fires caused by the sun, just as a boy uses his magnifying glass to ignite paper or dry leaves. A tabulation shows over 30 fires definitely attributable to sun's rays. In most cases the fires occurred where the heat from the sun was focused by shining through glass windows, bowls and bottles. Other fires occurred where sunlight was reflected by various agents such as mirrors or showcase glass.

THE danger of fires being started from sunlight is greatest where unusually burnable or unstable materials are present. Fireworks, pyroxylin articles and lacquer dust are particularly susceptible to this cause of ignition. Drying tobaccos, matches, photographic film, paper and cloth have also been ignited in this manner.

The following fires are typical of those which have been reported to the N. F. P. A. as being due to sun's rays:

Broken glass reflectors had been placed in a wooden barrel in the yard of a glass factory at Corning, N. Y., pending removal. On a hot July day the rays of the sun striking one of the pieces were reflected to the side of the barrel. At the point where the rays focused a hole was burned completely through. Attention is directed to this hole in the above photograph by the white circle around it.

June 17, 1864. Washington, D. C. A fire and explosion at the U. S. Arsenal cost the lives of 20 women employees. Metal pans containing chemicals used in the manufacture of fireworks had been left outside where they ignited from the sun's rays. Fire spread into a cartridge factory where the women lost their lives.

April 12, 1922, Hollywood, California. The rays of the sun shining through a pile of scrap film started a fire which damaged a film laboratory to the extent of $20,000.

May 15, 1922, Montreal, P. Q. The sun shining through the wired glass window of a macaroni factory focused on and ignited a table. The fire was extinguished by sprinklers with small loss.

June 18, 1925, Madisonville, Ky. Tobacco leaves hung up to dry in the hanging room at the top floor of a tobacco factory were ignited by the extremely hot sun shining through skylights. The dry tobacco spread the fire rapidly through the building, which was soon a total loss.

Sept. 18, 1926, Thief River Falls, Minn. A truck carrying a mail pouch and a gallon jug of vinegar was left standing in the sun. The sun's rays shone through the jug and produced enough heat to ignite the pouch which was rapidly consumed.

July 30, 1930, Clinton, Mo. A man set out for a walk with a pair of glasses and a pyroxylin comb both exposed to the hot sunlight in his pocket. The sun focused through the glasses on the comb and ignited it.

May 27, 1933. Toronto, Ont. Although the sun had been shining through the plate glass window but a few minutes it was strong enough to set off fireworks displayed in the show window. A loss of $2,000 resulted.

Nov. 4, 1934, Penn Yan, New York. The sun focused through a goldfish bowl on a pair of mittens in a dwelling. The mittens were ignited and the fire spread rapidly, doing $500 damage.

Sept. 22, 1935, Orleans, Mass. A jug of water on a back porch proved a magnifying glass through which the sun started a fire. Shingles ignited and the fire swept up the side of the house, doing $200 damage.

VITAGUARD

Fire Alarm System for Volunteer Fire Departments

The four essential elements of the simplest and most effective fire alarm system are illustrated in this diagram.

1. **FIRE ALARM BOXES.** A Vitaguard box when operated transmits four complete repetitions of its location number, which automatically sounded by the public alarm, directs the firemen to the scene of fire.

2. **PUBLIC ALARM.** The Diaphone compressed air horn is the most powerful sound producing device yet applied to fire alarm service. It has great sound penetration, a distinctive tone, and the ability to sound fast coded signals in clear, sharp blasts. There is no lag in the signal, the full volume of sound is instantly emitted.

3. **CONTROL UNIT.** This unit includes a recording register, code signal transmitter, storage battery, rectifier, protective and testing equipment, and line terminals. The batteries are automatically maintained in a fully charged condition. All instruments are automatically wound.

4. **CIRCUIT.** The simple closed metallic circuit consists of one wire attached to public alarm and control unit at the fire station, connects with all fire alarm boxes and returns to fire station. The system may include from one to forty boxes.

PUBLIC ALARM
Diaphone Horn
Projecting Above Roof

VITAGUARD
CONTROL UNIT

Outstanding Features are — Simplicity . . . Low Initial and Maintenance Costs . . . Rugged Construction . . . Automatic Operation of Alarm Equipment . . . May be Installed by Local Electrician

Write for complete catalogue

THE GAMEWELL COMPANY

NEWTON UPPER FALLS MASSACHUSETTS

1 GALLON—DUPLEX PUMP
"CAPTAIN"- FYR-FYTER
AN IDEAL EXTINGUISHER FOR VOLUNTEER FIRE DEPARTMENTS

Here is the equivalent of four 1-quart extinguishers built into one thus making this large quantity of vaporizing liquid available without running for another extinguisher when more than the average size blaze is encountered. This is but one of the complete line of Fyr-Fyter Extinguishers each of which have exclusive merits which stamp them as superior.

DEALERS WANTED

If you are interested in adding to your income by spare time work or in building a permanent business for yourself without investment in stock, fixtures, etc., write for our new Dealer's Plan to

FYR-FYTER COMPANY
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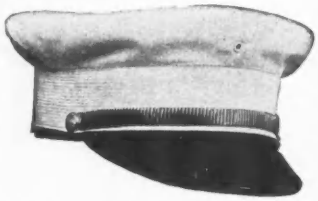
You Get the Best When You Insist On
BRUNSSEN'S
Helmet Brand
Regulation Fireman caps.



Officers' White Collar Duck caps with Extra cover at $3.75. New York Regulation gilt or chromium plated strap at $1.00 extra.

Privates' Blue caps at $1.75 to $2.75 apiece.

Postage extra

George Brunssen Co., Inc.
104 Bleecker St.,
New York

Bring Home $10.00 Easy Money

Pyrene Prize Letter Contest Pays for Stories of Good Work Done by Firemen With Extinguishers

FIREMEN know better than anyone else what fire extinguishers can do and that is why the Pyrene Prize Letter Contest is so popular. You may know of a case where an extinguisher saved a life or made a good stop; just tell the facts your own way. Having won a previous prize does not bar you from making another entry. The contest is sponsored jointly by the Pyrene Manufacturing Company of Newark, N. J., and VOLUNTEER FIREMEN.

FIRST PRIZE — $10.00

T. M. COOK, JR., *Chief*
Fire Department, Valdosta, Ga.

The Story of Jim Miller

"Sitting inside the fire station one morning, I was startled by a cry close to me. 'Out me, for God's sake, out me', cried the voice. Turning I saw before me a flaming human torch and recognized Jim Miller, negro garage attendant, who worked next door. I commanded, 'Lie down'. Jim obediently prostrated himself on the concrete floor. I grasped a one-quart carbon tetrachloride extinguisher from a nearby fire truck and immediately began spraying, fighting the flames from the face downwards. The spray immediately extinguished the flames. Jim was terribly burned. His gasoline saturated trousers had caught fire from a spark generated while he was using a wire brush on a car cleaning job. After undergoing skin grafting operations at the hospital he recovered and is now at work. The doctors said, 'A miracle saved him'. I say, 'A fire extinguisher saved him'."

SECOND PRIZE — $3.00

J. D. MILLER, *Chief*
Fire Department, Davis, California

New Extinguishers Save Shop

"Following a regular meeting of the Sacramento Valley Motor Dealers' Association, the general conversation turned to fire hazards. The writer called attention to the many fire hazards to be found in electric motor repair shops such as open tanks of air-drying and baking varnish, lacquers used to paint coils, flammable vapors from baking ovens and flammable liquids used in cleaning motor parts. I suggested that each owner present make an inspection of his shop the following morning, eliminate as many hazards as possible and provide extinguishers to control possible fires. Accordingly the following morning one shop owner purchased two one-quart carbon tetrachloride extinguishers. The extinguishers were still in his hands while he was looking for the most convenient place to hang them when a 100-gallon vat of baking varnish ignited. Both extinguishers were instantly used and when the fire department arrived the fire was out with a loss of only four gallons of varnish and a scorched wall and ceiling."

THIRD PRIZE — $2.00

EDGAR A. WEIMER, JR.
Fire Department, Lebanon, Pa.

They Laughed at My Extinguisher

"While driving around Lebanon some time ago, I discovered that a tar wagon used by the highway department had overheated and ignited. This wagon was dangerously near to buildings. Workmen were trying to put out the fire by slamming the lids down over the hot tar but to no avail. I took the one quart carbon tetrachloride extinguisher from my car and asked if I might try to put the fire out. The men laughed and told me that I could not put out a fire like that with a little one-quart extinguisher. I told them it was worth a try. I had them put both lids down tight on the tar and then lift one lid high enough to direct the stream on the boiling tar. After pumping in about a pint of carbon tetrachloride I had them close the lid tightly for a few minutes. When they lifted the lid the fire was out".

HONORABLE MENTION

Chief L. E. Morrissey, Merritt, B. C.; Captain Albro Rile, Hastings-on-Hudson, N. Y.; Asst. Chief Richard Wilson, Texas City, Texas.

CONTEST RULES

1. Contestants in the Pyrene Prize Letter Contest must be members of their local fire department.
2. Letters are to describe actual experiences where an approved fire extinguisher of any make has saved lives or property.
3. Trade names may be used but will be deleted in publication. Publishers reserve the right to edit winning letters to permit publication.
4. Each contestant automatically vouches for the truth of the facts presented from his own or others' experience.
5. Only one letter may be submitted each month.
6. Letters must be legibly written in ink or typewritten on white paper, one side only. Preference will be given to letters not over 250 words in length.
7. Letters received after the 8th of the month will be judged in following month's competition.
8. Monthly prizes in cash will be: 1st, $10.00; 2nd, $3.00; and 3rd, $2.00.
9. Address contest letters to Pyrene Prize Letter Contest, National Fire Protection Association, 60 Batterymarch St., Boston, Mass.

Selected Publications on Fire Subjects

Write for a complete list of N.F.P.A. publications. Following is a partial list of popular and useful books and pamphlets available at the prices quoted. Address: National Fire Protection Association, 60 Batterymarch St., Boston, Mass.

Automatic Sprinkler Systems, Use of by Fire Departments. General principles of fighting a fire in a building equipped with automatic sprinklers.
12 pages, 2 diagrams ..... 10 cents.

Fires in "Fireproof" Buildings. Fire protection engineers prefer the term "fire resistive" to "fireproof" since the ability of a building to stand up against fire is relative. Here is a discussion of fires in buildings of fire resistive construction based on a record of over 3400 such fires compiled by the N.F.P.A. Department of Fire Record. Photographs and stories of the principal large loss fires in fire resistive buildings.
32 pages, 28 illustrations ..... 15 cents

Lightning, Code for Protection Against. Nine tenths of the 400 annual deaths from lightning and a large percentage of the property loss due to lightning occurs in rural districts. Lightning rods have demonstrated that they will give buildings positive protection from lightning if properly installed. This publication shows how to install them. Also covers lightning protection for smokestacks, aircraft, ships, trees and live stock in fields.
40 pages, 6 illustrations ..... 15 cents.

Carbon Dioxide Fire Protection. By Robert S. Moulton, Technical Secretary, N.F.P.A. Use of this form of protection in electrical equipment, manufacturing processes involving flammable liquids, fur vaults and record protection. Characteristics of carbon dioxide, its smothering action on fires, its cooling effect as compared with water and its action on burning gases, liquids and solids. Description of carbon dioxide extinguishing devices, their advantages, limitations and suitability: portable extinguishers, permanent piped installations, electric power house installations, dip tank systems, and room flooding systems.
20 pages, 13 illustrations ..... 20 cents.

Refrigeration. Description of common types of mechanical refrigeration: compression, absorption and direct expansion systems. Domestic refrigeration. General data on how poisonous or flammable various refrigerants may be. Physical properties of refrigerant gases and the physiological reactions of the human body to these gases in various concentrations. Also explosion data. Gases covered include ammonia, butane, carbon dioxide, ethane, ethyl chloride, methyl chloride, propane, sulphur dioxide, phosgene, chlorine, bromine, hydrogen sulphide, hydrocyanic acid, hydrogen chloride, carbon monoxide, benzene, methyl bromide, chloroform, carbon tetrachloride, ethyl bromide, gasoline vapor and illuminating gas.
24 pages, 2 illustrations ..... 20 cents.

School Fires. A record of 875 school fires reported to the National Fire Protection Association. Includes the story of the Collinwood, Ohio, school fire in which 173 children and 2 teachers perished and 6 other major school disasters involving a total loss of life to 198 persons. Analysis of the fires tabulating causes, type of buildings, places of origin of the fire and the like. Selected reports of typical fires illustrating points of special interest such as the effectiveness of automatic sprinklers and the value of fire drills.
34 pages, 25 illustrations ..... 25 cents.

Hospital and Institution Fires. A record of 202 hospital and institution fires reported to the National Fire Protection Association. Includes the story of the Cleveland Clinic fire where 124 people died as the result of the hazard of x-ray nitrocellulose film and seven other major disasters involving a total loss of life to 228 persons. Analysis of the fires tabulating causes, type of buildings, places of origin of the fire and the like. Selected reports of typical fires, illustrating points of special interest such as the effectiveness of automatic sprinklers, and the value of fire drills.
68 pages, 37 illustrations ..... 35 cents.

City Planning and Zoning. A brochure prepared by N.F.P.A. Committee on City Planning and Zoning showing the relation of these subjects to fire prevention and fire protection. History and legal background of city planning and zoning. Covers the part played by such factors as fire resistive buildings, sprinklered buildings, locations of fire stations and the central fire alarm headquarters, water supply, telephone service, mutual aid and fire alarm box distribution.
44 pages and 4 page supplement, 3 maps, 8 photographs ..... 50 cents.

A New Fire Department Manual

Hose

and Hose Couplings

a substantial manual of 44 pages, 6 in. by 9 in., 11 illustrations, containing informative material on the selection, care and testing of hose and hose couplings, compiled from recommendations of N.F.P.A. committees and other authoritative sources. Manual shows how to load hose so as to prevent deterioration and how to handle it at fires to avoid unnecessary damage. Includes a detailed set of specifications for use in buying hose.

Single copies ..... 25 cents

Put a copy in the hands of every fireman in your department.

National Fire Protection Association
INTERNATIONAL
60 Batterymarch St., Boston, Mass.

PARTIAL CONTENTS:

National Fire Codes for Flammable Liquids and Gases

360 pages, 6 x 9 in.
$1.50 each postpaid

- Flammable Liquids Ordinance
- Marine Oil Terminals
- Freeing Tanks of Flammable Vapors
- Tank Truck Ordinance
- Oil Burner Regulations
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- Gasoline Stoves
- Gasoline and Kerosene on the Farm
- Liquefied Petroleum Gas Code (Propane and Butane)
- Compressed Gas Systems
- Liquefied Petroleum Gas Tank Trucks
- Motor Craft, Pleasure and Commercial
- Airplane Fueling Operations
- Dry Cleaning and Dry Dyeing
- Paint Spraying and Spray Booths
- City Gas, Installation, Piping, Fittings
- Odorization of Gas
- Acetylene for Lighting, Heating and Cooking
- Gas Systems for Welding and Cutting
- Anaesthetic Gases and Oxygen in Hospitals
- Refrigeration Safety Code
- Fire Hazard Properties of Flammable Liquids, Gases and Volatile Solids

The Most Important Fire Book That Will Be Published This Year

National Fire Codes

for Flammable Liquids and Gases

$1.50 postpaid

The public demands expert advice, not guesses, on matters of fire safety. The answers to such problems are given in this authoritative volume. Not one man's opinion or experience, but the considered judgment of experts in their several fields, these recommendations may be quoted as official. In all, the volume includes 36 important sets of regulations covering the entire range of hazards from flammable liquids and gases.

Fires in flammable liquids and gases are tougher and more dangerous than the ordinary run of alarms answered. These codes show primarily how the fires may be prevented. If you know the safeguards for each of these hazards, it will also enable you to promptly and safely handle these fires when they come along.

NATIONAL FIRE PROTECTION ASSOCIATION
INTERNATIONAL
60 Batterymarch St., Boston, Mass.

Preliminary Announcement

A Model Records and Reporting System for Fire Departments

The National Fire Protection Association will shortly publish, jointly with Public Administration Service of Chicago, a long needed manual to assist fire departments in modernizing their records systems, and their reporting procedures. This publication will show how a record system can be installed and how it should operate. It will include copies of the 27 forms considered most important in fire department work. It may be adapted to the needs of any municipal fire department. If you will send your name and address a copy of the circular describing this record system will be mailed to you when it is available.

CONTENTS

I. Use of records and reports.
II. Company records and reports.
III. Officers' reports on fires and alarms.
IV. Inspection records.
V. Building fires classified by occupancy and cause.
VI. Headquarters' records.
VII. Fire alarm office records.
VIII. Consolidated reports.
IX. Annual reports.

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INTERNATIONAL
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BARTON FIRE PUMPS

Everything Better — EVEN THE PRICE!

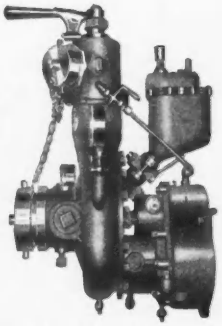
Believe it or not—in the case of fire pumps, **the best costs the least.**

Barton Fire Pumps **front-mounted** can save your community HUNDREDS OF DOLLARS in the cost of complete apparatus—yet give you everything required in the way of first-class protection.

Incorporated in Barton Pumps is the utmost in high-efficiency and endurance. We use the finest materials — stainless steel, ball bearings, etc. **They pass all Underwriters' Tests with flying colors.**

Remember this: so excellent is Barton performance and construction that NOT IN TEN YEARS do we know of a single pump which has failed in line of duty.

Write us today for the address of our nearest representative. Let him show you how to save money, and still have the kind of pumping apparatus your whole community will be proud to own.



Barton U-Type Fire Pumps are regularly equipped with **gear-drive.** Truck motor operates at approximately one-half pump speed — **no strain on motor.** Available in 350, 400, 500 and 600-gallon sizes. Also other Barton Pumps at still lower prices.

Why Over 1000 Chiefs Chose BARTON Pumps

1 —**Centrifugal type** — pumps clean or dirty water.

2 —**Easily installed on front of truck** — great economy — no chassis changes required.

3 —**Large capacities and high pressures**—equal to any emergency.

4 —**Underwriters' Tested.**

5 —**Simple design** — dependable and trouble-free.

6 —**Fully accessible** — no hidden parts.

7 —**Light weight.**

8 —**Easy to operate** — simple as driving a car.

9 —**Automatically primed.**

10 —**Guaranteed by Million Dollar Company.**

AMERICAN-MARSH PUMPS, INC.

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